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Promoting the discussion of the matters relating to the definition and delimitation of outer space with a view to elaborating a common position of States members of the Committee on the Peaceful Uses of Outer Space

Working paper prepared by the Chair of the Working Group on the Definition and Delimitation of Outer Space of the Legal Subcommittee

1. At the fifty-fifth session of the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space, in 2016, the Subcommittee's Working Group on the Definition and Delimitation of Outer Space noted the proposal of the Chair to begin to take a flexible and pragmatic approach to the definition and delimitation of outer space; considering that States have different views on the definition and delimitation of outer space, it was important to find a common vision and attempt to arrive at a commonly agreed standpoint, taking into account all positions and views (A/AC.105/1113, annex II, para. 5).

2. At the fifty-sixth session of the Subcommittee, in 2017, the Working Group noted that pursuant to that proposal, the Chair of the Working Group would prepare a working paper, to be made available by the Secretariat as a document of the United Nations and sent to member States and permanent observers of the Committee, in 2017 (A/AC.105/1122, annex II, para. 5).

3. The present document contains the working paper prepared by the Chair of the Working Group in order to promote the discussion within the Working Group at the fifty-seventh session of the Subcommittee, to be held in 2018, and for continuing work to find a consensus on the matters relating to the definition and delimitation of outer space.

Considering the vertical limit of State sovereignty

4. The delimitation of the boundary between airspace and outer space constitutes a relevant legal issue, with practical implications for airspace, suborbital and space activities. Therefore, a multilateral legal solution should be seriously pursued in a joint effort.

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5. Air law and space law have different approaches to territorial State sovereignty. In accordance with the Convention on International Civil Aviation of 1944, States hold absolute and exclusive jurisdiction over their respective airspace. On the other hand, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, of 1967 establishes that outer space cannot be subject to national claims of any kind.

6. Therefore, a contradiction emerges: outer space constitutes the vertical frontier of national territories which, although finite, extend themselves from the surface of the Earth up to an undetermined altitude.

7. States members of the Committee have the right and the duty to contribute to the advancement of space law, presenting *de lege ferenda* initiatives, whenever appropriate. Therefore, the delimitation of outer space deserves to be seriously considered and appraised in a broad international effort which acknowledges the public interest in bridging undesirable legal lacunae.

Territorial integrity as a fundamental principle of international law

8. Sovereignty represents the exclusive and independent power of a State in relation to a population located in a certain area. Therefore, a clearly defined and delimited territory constitutes an essential element of statehood as it identifies the geographical (physical) limits of sovereign power.

9. States exercise complete jurisdiction only within the limits of their national territories, except if otherwise authorized by other States. If we see borders as the lines where different legal systems come into contact, the existence of mutually accepted borders that delimit sovereignty allows the coexistence of States and promotes peaceful international relations.

10. National borders must, in accordance with international law, be respected by all States. That principle is recognized in the Charter of the United Nations, which provides that "all Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the purposes of the United Nations" (art. 2, para. 4).

11. Without proper delimitation of the frontier between airspace and outer space, the principle of territorial integrity cannot be fully exercised, and the potential for conflicts of jurisdiction, as far as aeronautical and space activities are concerned, increases dramatically.

Lack of consensus in the Committee

12. Regarding the debate in the Committee, the report of the Secretariat entitled "Historical summary on the consideration of the question on the definition and delimitation of outer space" was submitted to the Legal Subcommittee at its forty-first session, in 2002 (A/AC.105/769 and Corr.1).

13. That document, which should be regularly updated, indicates that throughout the years, ever since the definition and delimitation of outer space was introduced in the agenda of the Legal Subcommittee in accordance with General Assembly resolution 2222 (XXI) of 1966, two main positions have crystallized: one supporting a clear delimitation of the frontier between airspace and outer space based on scientific or commonly accepted criteria, reflecting the "spatialist" approach; the other considering that such delimitation is unnecessary or even impossible and therefore that activities performed in those areas should be assessed in congruence with their respective objectives, reflecting the "functionalist" approach.

14. In the last decades, several proposals for the delimitation of outer space have been officially advanced at the Legal Subcommittee, without overwhelming support or consensus. Among these proposals were demarcations based, for instance, on the

establishment of the upper limit of national sovereignty; on the division of the atmosphere into layers; on the maximum altitude of aircraft flight (the theory of navigable airspace), based in turn on the aerodynamic characteristics of flight instrumentalities (the von Kármán line); on the lowest perigee of an orbiting satellite; on the Earth's gravitational effects; on effective control; and on the division of space into zones.

15. The absence of agreement on such an important legal issue has created a deadlock in the Legal Subcommittee, which has not been able to conceive a proper solution for this question, despite the best efforts of the Working Group established in 1984 specifically to address the definition and delimitation of outer space, pursuant to General Assembly resolution 38/80 of 1983.

Unilateral initiatives of delimitation

16. Without proper international regulation, unilateral proposals for delimitation, through national legislation, are to be expected. It must be recognized that the vertical limit of national sovereignty in relation to airspace or outer space has already been addressed one way or another through a growing number of national regulations. Those national regulations which provide, even indirectly, a clear boundary of national airspace, use various criteria, ranging from a relatively low altitude above the mean sea level, encompassing the navigable airspace, to delimitations of a very high altitude, even extending beyond some of the most valuable Earth orbits.

17. Therefore, one may reasonably conclude that the vertical limit of State sovereignty, wherever it has been established at the national level, tends towards local and national interests and often varies in nature and scope.

18. For the delimitation of outer space, a multilateral solution must be preferred, given the legal importance of the question at hand, without disregarding inherent political aspects and scientific data. Universal delimitation should always prevail over local and unilateral solutions.

Towards a multilateral delimitation, contemplating passage rights

19. It is hereby supported, as an official position, the delimitation of the frontier between airspace and outer space at 100 km above mean sea level, to be established through an international instrument which provides for regulation of passage rights for space objects during launching and re-entries, so long as those space activities are peaceful, are conducted in accordance with international law and respect the sovereign interests of the applicable territorial State or States.

20. Recognition is due to the necessity of providing a clear legal standard of altitude for the delimitation of the frontier between airspace, subject to exclusive State sovereignty, and outer space, which in accordance with international law is considered an international territory.

21. The boundary between airspace and outer space should be delineated at an arbitrary altitude, as determined by an international instrument, preferably a treaty, to assure legal certainty for aeronautical and space activities. The standard of 100 km of altitude above mean sea level is hereby advocated, and that proposal is based on the opinion of not only academics but also delegations to the Committee on the Peaceful Uses of Outer Space and the Conference on Disarmament. That altitude is located in a singular zone where aerodynamic lift decreases to critical levels and the lowest perigees attainable by space objects in orbit can be reasonably identified.

22. Certainly, space activities are not conducted exclusively in outer space. For space objects to reach and return from an orbit, national and occasionally foreign airspace has to be overflown, giving rise to sensitive legal and political considerations. Therefore, it is advocated that an international regulation should be

developed dealing with the passage rights of space objects, to be applicable during launch and re-entry, whether controlled or not.

23. Passage shall be granted whenever space activity is considered peaceful, as established by specific standards; this would respect the best interests of the territorial State and of the international community. Accordingly, passage through national airspace should not be deemed peaceful if it is conducted in violation of international law, disrespects the sovereignty of the territorial State or poses unjustified risks to the local population or the environment.

Proposal

24. The Working Group could consider, taking into account the above-mentioned arguments, establishing the boundary between airspace and outer space at 100 km of altitude above mean sea level, with the provision of a special regime applicable to the launching and re-entry of space objects, taking into particular consideration aerospace objects and suborbital flights.

25. Such a special regime would contemplate passage rights through national airspace for space activities whenever they are deemed peaceful, are in conformity with international law and respect the sovereign interests of the territorial State or States concerned.

26. Space activities are not conducted exclusively in outer space. For space objects to reach and return from orbit, national or foreign airspace has to be overflown, giving rise to sensitive legal and political considerations. Therefore, it is advocated that there should be an international regulation of passage rights for space objects, applicable during launching and re-entry, whether controlled or not.

27. Passage shall be granted whenever the space activity is considered peaceful, as established by specific standards, thus respecting the best interests of the territorial State and of the international community. Accordingly, passage through national airspace shall not be deemed peaceful if it is conducted in violation of international law, disrespects the sovereignty of the territorial State or poses unjustified dangers to the local population or the environment.

Concluding remarks

28. Through careful drafting involving the international community and the Committee, a proper regulation can be established multilaterally for the benefit of all humankind.

29. In addition, by eliminating an important legal lacuna in international law, the potential for international disputes would be minimized, safeguarding peace among nations.

30. The position herein advocated supports an approach which not only pays tribute to past proposals but also includes particular conciliatory features, taking into consideration the differing positions put forward by delegations to the Legal Subcommittee.

31. It is strongly believed that only through a compromise that seeks a common place among the varying perspectives may it be possible to clarify the international rules applicable to human activities in airspace and outer space.